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DISSERTATIONS AT THE MOSCOW POWER-ENGINEERING INSTITUTE IMENI MOLOTOV, JANUARY - DECEMBER 1947

Docent A. S. Sergeyev
Secy, Sci Council
Moscow Power Eng Inst

The following dissertations for the degree of Candidate in Technical Sciences were defended at the Moscow (Order of Lenin) Power-Engineering Institute imeni Molotov in the period January - December 1947:

1. Balagurov, V. A., "A High-Voltage Series Capacitor in the Secondary Circuit of Multicylinder Aviation Magnetos"

Official opponents: Prof A. N. Larionov, Dr Tech Sci, and Engr Col Yu. M. Galkin, Cand Tech Sci

Reports on an analytical and experimental study of the working process in all of its stages for magnetos with and without a series capacitor connected in the secondary circuit. Finds criteria for determining the optimal capacitance and clarifies the area of application in relation to the number of cylinders of the engine and its speed of rotation. Proposes simplified formulas, suitable for plant use, describing transient processes.

2. Bulgakov, N. I., "Geometry of a Minimum-Cost Transformer"

Official opponents: Prof V. A. Trapeznikov, Dr Tech Sci, and M. V. Lipkovskiy, Cand Tech Sci

Calculates the geometric dimensions of a minimum-cost transformer from certain given parameters (power, losses, induction, current density, etc.).

3. Butslov, M. M., "Study of the Emission Properties of Semitransparent Oxygen-Cesium Photocathodes and Development of Their Production Technology"

Official opponents: Prof A. P. Ivanov, Dr Tech Sci, and G. A. Tyagunov, Cand Tech Sci

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4. Chunikhin, A. A., "Analysis of Existing Methods for Calculating the Steady-State Voltage and a New Calculation Method for Circuits With Distributed Constants"

Official opponents: Prof M. A. Babikov, Dr Tech Sci, and A. I. Dolginov, Cand Tech Sci

Discusses a practical method to calculate the steady-state voltage in circuits with distributed constants. The work can be used to set up models of circuits equivalent to the latter from the standpoint of transients occurring during switching. This makes it possible to consider a number of factors the effect of which is usually disregarded in calculating steady-state voltage.

5. Der-Shvarts, G. V., "Design of High-Frequency Current Carriers"

Official opponents: Prof L. A. Zhekulin, Dr Tech Sc. and V. Yu. Lomonosov, Dr Tech Sci

Gives formulas for calculating ohmic losses in various current carriers used in high-frequency furnaces. Proves that in an ideal conductor, the distribution of current density along the perimeter of the transverse cross section is characterized by a potential function and that the perimeter itself becomes a magnetic line of force. Gives graphs for practical calculations.

6. Dinaburgskiy, I. M., "Common Asymmetry of Three-Phase Circuits"

Official opponents: Prof N. V. Gorokhov, Dr Tech Sci, Prof V. Yu. Lomonosov, Dr Tech Sci, and S. A. Ul'yanov, Cand Tech Sci

Analyzes existing criteria of asymmetry; proposes two new systems of equations for solving problems on common asymmetry; gives a method for calculating harmonics for an asymmetric load on asymmetric generators; advances new schemes for transforming some of the zero-sequence impedances into others; suggests systems of asymmetric components which have many advantages over the components of Edith Clark and Kimbark.

7. Efrussi, Ya. I., "The Piezoelectric Band Filter"

Official opponents: Prof Ye. S. Antselovich and Engr A. P. Antipov

Investigates the structure of band filters from piezoelectric plates as they are made for oscillatory circuits. Calculates the characteristics of piezoelectric filters made from two plates, designed for radiotelegraph reception, and checks the calculation experimentally. Develops the transient theory of this type of filter. Compares the operation of band filters with that of the usual filter made from one plate.

8. Fedorov, A. A., "Basic Problems in the Technical Operation of Electrical Equipment in Industrial Enterprises"

Official opponents: Prof A. T. Golovan, Dr Tech Sci, and Docent B. A. Knyazevskiy, Cand Tech Sci

9. Glagoleva, T. A., "A Method of Calculating the Engineering Significance of Natural Lighting"

Official opponents: Prof V. V. Meshkov, Dr Tech Sci, and B. I. Lugovskoy, Cand Tech Sci

Develops a method for determining the equivalent evaluation of light conditions with varying values of illumination. Finds a quantitative relationship for the illumination values of natural and artificial illumination, which provides the equivalent light conditions within a building when the coefficient of natural illumination is allowed to vary from its normal values.

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10. Golostenov, G. A., "An Illuminating Engineering Analysis of Superhigh-Pressure Mercury Lamps, as Applied to Their Use as Light Sources in Motion Picture Projector Lamps"

Official opponents: V. A. Fabrikant, Dr Physicomath Sci, and Prof N. A. Karyakin, Dr Tech Sci

Cites the basic illuminating engineering characteristics of lamps employing a gas discharge in mercury vapors at various pressures. Gives the main parameters for experimental and production models of the RLSVD (mercury lamp, superhigh pressure) of Soviet and foreign manufacture.

11. Glazunov, A. A., "Methods for Selecting and Using Voltage Regulation Equipment in Electric Networks of the Simplest Type"

Official opponents: Prof A. Ya. Ryabkov and Prof V. N. Stepanov

Studies various methods to select the power of compensating equipment from voltage regulation conditions. Gives formulas and equations for determining the operating conditions of voltage regulators which will give minimum power losses in the network. Proposes a new method for the selection and use of voltage regulators.

12. Gol'tsov, V. A., "Design of Secondary-Electron Multipliers for Various Frequencies"

Official opponents: Prof A. P. Ivanov, Dr Tech Sci, and G. A. Tyagunov, Cand Tech Sci

Investigates a tube with one stage of secondary-electron amplification, designed for amplification of a wide band of frequencies up to 55 Mc. Analyzes the design of the tube and its individual electrodes, cites characteristics and parameters, and gives a method and circuit for measuring the amplification factor and frequency response of the tube at frequencies close to 500 Mc.

13. Govorov, G. V., "Electromagnetic Braking"

Official opponents: Prof Yu. S. Chechet, Dr Tech Sci, and M. S. Mikhaylov-Mikulinskiy, Cand Tech Sci

Gives a method of calculation and describes an experimental study of electromagnetic braking using a steel disc. Finds the minimum diameter of the disc for braking with natural-air cooling assuming a certain induction in the disc.

14. Ivanov, I. I., "The Physicodielectric Properties of High-Frequency Plastics With Mica Fillers"

Official opponents: Prof K. A. Andrianov, Dr Tech Sci, Stalin Prize, Laureate, and V. I. Kalitvyanskiy, Cand Tech Sci

Investigates the possibilities of raising the heat resistance, frost resistance, and mechanical strength of insulators made from plastics used in radio engineering while simultaneously preserving their dielectric properties.

15. Kasprzhak, G. M., "A Regulable Squirrel-Cage Micro-Servo Drive"

Official opponents: Prof N. V. Gorokhov, Dr Tech Sci, and Prof A. N. Larionov, Dr Tech Sci

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16. Kostrova, Ye A., "Stability Problems in Phase-by-Phase and Three-Phase Automatic Repeated Reclosing"

Official opponents: Prof D. A. Gorodskiy, Dr Tech Sci, and V. A. Venikov, Cand Tech Sci

Investigates stability limits for phase-by-phase and three-phase automatic repeated reclosing (APV) for the cases when the station is connected with systems of finite and infinite powers. Establishes the possible areas of application of circuit breakers of the MKP type for phase-by-phase APV and of high-speed air circuit breakers for three-phase and phase-by-phase APV. Gives a method for consideration of asymmetry of capacitances in disconnecting one phase of a long line. Discusses the effect of grounding transformer neutrals through an ohmic resistance upon stability in phase-by-phase APV after single- and two-phase grounds.

17. Kozis, V. L., "Maximum-Current Filter Protection of Generators and Feeders"

Official opponents: Prof P. G. Grudinskiy and I. A. Syromyatnikov, Cand Tech Sci

Describes a system for maximum current protection of generators using one maximum-current relay operating on a signal and one maximum-current relay operating on disconnecting. Analyzes problems of matching protection of feeders with filter protection of generator and works out matching methods. Gives methods for calculation of filter protection elements and cites results of laboratory tests of protection circuits devised.

18. Krasilov, A. V., "Methodology for Testing Receiving Tubes"

Official opponents: Prof I. L. Kaganov, Dr Tech Sci, and V. K. Vittorskiy, Cand Tech Sci

Analyzes the properties of receiving tubes and classifies the parameters characterizing tubes, develops a program for testing various tube types, selects statistical methods for processing test data, and develops methods for establishing tube parameter norms.

19. Lopukhina, Ye. M., "A Theoretical and Experimental Study of Induction Motors Having a Rotor in the Form of a Hollow Nonmagnetic Cylinder"

Official opponents: Prof Ye. V. Nitusov, Dr Tech Sci, and Ye. M. Sinel'nikov, Cand Tech Sci

Gives a design of an induction motor with the rotor in the form of a hollow nonmagnetic cylinder for powers of 0.01 to 30 w at frequencies of 50 and 500 cps. Derives a formula for the starting torque of the motors, in which the rotor length is greater than that of the stator steel. Studies the field in them, and clarifies and evaluates the effect of forcing the eddy current along the thickness of the cylinder. Calculates the motor by the graphic-analytic method with consideration for the boundary effect. Gives conclusions on the field distribution in the machine and the distribution of eddy currents in the rotor. Develops the most efficient design of the motor and evaluates its operating qualities.

20. Malevinskiy, B. V., "Study of Pressure in the Arc-Quenching Devices of High-Voltage Circuit Breakers"

Official opponents: Prof K. M. Polivanov, Dr Tech Sci, and Docent G. S. Borchaninov, Cand Tech Sci

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Analyzes methods of recording pressure in circuit breakers and describes instruments for this purpose constructed and studied by the author, one with inductance and one with a carbon resistance. Gives method for theoretical analysis of the effect and a method for calculating pressure in breakers. Describes experimental check of this method by experiments in high-voltage arc-quenching using a simple arc-quenching device and by tests of MGF-11 and MGF-13 breakers and a breaker with a solid gas-generating substance designed by the All-Union Electrical Engineering Institute.

21. Nekrasova, N. M., "Principles of the Design of Heating Elements for High-Temperature Electric Resistance Furnaces"

Official opponents: Prof V. V. Meshkov, Dr Tech Sci, Docent E. G. Uderman, and N. V. Okorokov, Cand Tech Sci

Gives method for the design of heating elements according to the watt load for a given permissible temperature of the element and also specific power of the wall for actual heating element installations. Compares effectiveness of radiation for heaters made in the form of zig-zag strips and thin bands.

22. Neyfakh, G. M., "Compensator Operation of a Hydro-Unit"

Official opponents: Prof T. L. Zolotarev, Dr Tech Sci, and Prof P. S. Zhdanov, Dr Tech Sci

Investigates the operation of a hydro-unit as a synchronous compensator. Develops special diagrams which make it possible to determine the most advantageous operating conditions for units in order to reduce water discharge to a minimum and also to establish the active and reactive loads at which the unit should be changed from one type of operation to the other.

23. Panevkin, K. I., "Excited Atoms in the Positive Discharge Column of a Fluorescent Lamp"

Official opponents: Prof A. P. Petrov, Dr Tech Sci, and Prof P. V. Timofeyev, Dr Physicomath Sci

Develops a new experimental method for determining the lifetime of excited atoms in a gas discharge from the drop in the absorption of radiation after the discharge stops. This method is based upon the use of an electron-multiplier phototube and a cathode-ray oscilloscope to measure the intensities of spectral lines (a cathode-ray spectrophotometer).

24. Petrov, V. M., "Study of Dynamic Processes in Electric Drives for Nonuniform Motion"

Official opponents: Prof A. T. Golovan, Dr Tech Sci, and N. P. Kuritskiy, Cand Tech Sci

Gives method to determine the torques acting in the separate units of a drive producing accelerated motion and a method to solve the equations of motion of an electric drive with consideration for energy losses in the drive mechanisms. Gives a new method for the analysis and calculation of dynamic processes of electric drives having a shunt characteristic.

25. Polevoy-Mansfel'd, V. A., "The Split Winding Principle and Its Use in Electric Equipment"

Official opponents: Prof P. G. Grudinskiy and N. I. Bulgakov, Cand Tech Sci

Generalizes the theory of multiwinding transformers and from this proceeds to the discussion of split-winding units. Establishes their equivalent circuits and analyzes operating conditions of electric equipment in which this principle is used. As a result, clarifies the situations where the split-winding principle can be effectively used to limit short-circuit currents, to localize breakdowns, and to increase the reliability of electric stations and substations.

26. Popov, D. A., "Speed Regulation for the Electric Drive of Aircraft Mechanisms"

Official opponents: Prof Ye. V. Nitusov, Dr Tech Sci, and Prof B. P. Aparov, Dr Tech Sci

Investigates a Leonard system with a regulator, which has in comparison with the usual Leonard system more rigid mechanical characteristics, higher stability for static operating conditions, and requires a smaller rheostat. Gives results of an experimental and theoretical study of the circuit, by which the speed i made completely independent of the load. Cites results of studying a Leonard system with an amplidyne.

27. Popov, M. F., "Operation of Pulsed X-Ray Tubes in Capacitor Circuits"

Official opponents: Prof A. P. Ivanov, Dr Tech Sci, and V. V. Yasinskiy, Dr Tech Sci

Shows that anode currents of several score or hundreds of amperes can be obtained with a hot cathode in pulse operation. Studies the effect of variation of the size and form of the focus spot as it depends upon pulse discharge conditions and the design of the cathode. Shows, for the first time, that the magnetron effect does influence the size of the focus in X-ray tubes. Reports ionization and roentgenographic measurements of the radiation intensity for various tube types and gives a comparative analysis.

28. Razevig, D. V., "Analysis of Circuits Providing Atmospheric-Overvoltage Protection for Rotating Machines Working Into Suspension Lines Through Cable Inserts"

Official opponents: Prof V. V. Burgsdorf, Dr Tech Sci, and A. I. Dolginov, Cand Tech Sci

Investigates the protective properties of cable inserts in circuits for protecting rotating machines from atmospheric overvoltages. Shows that a simple protective circuit does not always provide perfect protection for generators. Investigates several new systems which eliminate the defects of the simple circuit. Draws up an equivalent circuit which is applicable for practical calculations; gives clear recommendations on possible attenuations for 6-kv cables and rough recommendations for cables working on other voltages.

29. Razumov, A. V., "Study of a Circuit for Speed Regulation of an Induction Motor by Means of a Tuned Circuit in the Rotor"

Official opponents: Prof Ye. V. Nitusov, Dr Tech Sci, and V. N. Arkhipov, Cand Tech Sci

Shows that this circuit makes it possible to obtain rigid mechanical characteristics with a high load capacity in the motor. Because of the capacitance required of the circuit capacitors, the scheme is most effective in obtaining speeds below 0.5 no and can be recommended in electric drives requiring creeping speeds and a fixed stop.

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30. Rozenfel'd, Ye. I., "Study of a System With Feedback and Its Relation to the Common Properties of a Four-Terminal Network"

Official opponents: Prof I. Kh. Nevyazhskiy, Dr Tech Sci, and V. G. Vol'-pyan, Cand Tech Sci

Investigates the transfer function of an arbitrary linear stable four-terminal network. Establishes common properties possessed by the frequency-phase characteristic of this system, from which the general criteria of stability are obtained: (a) for stable and unstable systems without feedback when feedback is used; (b) for stable and unstable systems with feedback when the feedback is removed; and (c) for an arbitrary stable two-terminal network connected with a negative resistance. Gives a method to determine the number of unstable roots of the characteristic equation.

31. Sandler, A. I., "The Most Efficient Voltage From the Economic Standpoint for the Internal Needs of Steam-Electric Power Stations"

Official opponents: Prof P. G. Grudinskiy and Prof V. N. Stepanov

Analyzes the historical development of switching circuits and supply sources for the internal requirements of steam-electric power stations. Proposes a general method for engineering-economic comparisons of the internal needs of stations having different powers, and also establishes an economically efficient voltage for units supplying the internal requirements of Soviet electric power stations. Develops problems relating to the supply of motors driving station mechanisms in the boiler room, machine hall, and central pump room of electric stations with installed capacities of 12,000, 25,000, 50,000, and 100,000 kw.

32. Shimanskiy, Yu. S., "Calculation of the Complex Magnetic Permeability of Transformer Steel From Static Constants"

Official opponents: Prof A. S. Kanter, Dr Tech Sci, and Prof K. M. Polivanov, Dr Tech Sci

Gives a method which can be used to determine (for transformer steel designed for use in weak af magnetic fields) the dynamic magnetic characteristics (inductance and iron losses) necessary for the design of transformers and chokes from a few static magnetic constants. Derives formulas which enable one to separate hysteresis and eddy current losses.

33. Shuleykin, G. V., "A Method of Determining the Design Parameters of Supports (Poles and Towers) for Electric and Radio Networks in Order to Cut Down the Weight of the Constructions"

Official opponents: Prof S. S. Kryukovskiy and I. V. Koptev, Dr Tech Sci

Develops a method for finding the best solution in determining support parameters.

34. Sirotinskiy, Ye. L., "Electrical Models of Hydroelectric Power Systems With Pressure Equipment"

Official opponents: Prof T. L. Zolotarev, Dr Tech Sci, and Prof V. V. Burgsdorf, Dr Tech Sci

Considers in detail all the quantitative relationships necessary for practical use of models; gives a method for designing the electronic circuits needed and compares different methods for the calculation of artificial lines to model pressure installations. The operating principle of the most important components of the model (the circuits for electrical multiplication and raising quantities to fractional powers, the circuits describing the flow of water into the turbine) was checked experimentally.

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35. Smel'nitskiy, S. G., "An Annular Speed Regulator"

Official opponents: Yu. N. Rabotnov, Dr Physicomath Sci, and V. N. Veller, Cand Tech Sci

On the basis of an approximate method for determining large deformations in a thin elastic circular ring, develops a method for designing an annular regulator and selecting its main dimensions for two possible types of regulation. From theoretical studies, devised and built a regulation system with an annular speed regulator for VVS /high-voltage type/ turbines in the Steam Engines Laboratory of the Moscow Power Engineering Institute. Tests of this system gave good results, and therefore the development and introduction of the first commercial models has been started.

36. Sokolov, M. M., "A Theoretical and Experimental Study of an Asynchronous-Synchronous Cascade"

Official opponents. Prof A. T. Golovan, Dr Tech Sci, and Docent K. V. Urnov, Cand Tech Sci

Investigates: the equivalent circuit of the cascade, vector and circular diagrams, mechanical characteristics of the main drive motors, selection of power of the machines used in the cascade, the static and dynamic stability of the cascade, the power factor of the system, and some other problems.

37. Sokolov, N. G., "Study of the Properties of a Series Motor Fed From a Series Generator"

Official opponents: Prof D. P. Morozov, Dr Tech Sci, Prof S. A. Pogozhev, and N. P. Kunitskiy, Cand Tech Sci

Discusses a system of electric drive which would use a series motor fed from a series generator for low-power drives, regulable at constant torque. Such an electric drive system might be used for driving the feed mechanisms of metal-cutting machines (grinders, milling machines, vertical lathes), for driving chain grates, dust-preparing equipment, all types of friction mechanisms, etc.

38. Soldatkina, L. A., "Electric Power Distribution Systems in Rural Areas"

Official opponents: Prof V. N. Stepanov and Docent F. P. Lashkov

Reviews rural electrification in the USSR, the US, France, Great Britain, and Germany. Discusses methods for designing local suspension networks with an unbalanced load on the separate phases and methods for preliminary calculations to select the most effective distribution systems. Analyzes various distribution systems from the technical and economic standpoint and makes recommendations on their selection.

39. Stefanov, V. S., "Synthesis and Investigation of Heat-Resistant Electrical Insulating Compositions Made From Glass Wool and Sovtol"

Official opponents: Prof N. V. Aleksandrov, Dr Tech Sci, and Yu. V. Koritskiy, Cand Tech Sci

Develops methods of obtaining sovol, trichlorobenzene, and sovtol and clarifies the properties of these liquids as dielectrics. Investigates methods of measuring dielectric losses and develops special electrodes which speed up these measurements and give stable results. Reports on the selection and synthesis of high-molecular substances with an introduction of components increasing heat resistance.

40. Stefanovich, T. Kh., "Study of Types of Operating Conditions of a Synchronous Motor When It Drops Out of Synchronism for a Short Period"

Official opponents: Prof D. A. Gorodskiy, Dr Tech Sci, and Prof Yu. S. Chechet, Dr Tech Sci

Investigates processes occurring in a synchronous motor when it drops out of synchronism because of a short-period overload on the shaft. Devises a method of design which would permit one to select the relationships between the motor parameters and the factors determining the shaft load so that the maximum variation in rotor speed would be 5-6%. With this design, the motor would pull back into synchronism after the load was decreased without requiring the use of any special devices for this purpose.

41. Stolov, L. I., "Starting and Braking of a Squirrel-Cage Induction Motor Under Load"

Official opponents: Prof N. V. Gorokhov, Dr Tech Sci, and A. S. Sandler, Cand Tech Sci

Discusses a universal method to determine the duration of starting and braking in squirrel-cage induction motor drives which can be used for any form of the mechanical characteristics of the drive mechanisms and for any deviations of the mechanical characteristics of the motors from the Kloss equation.

42. Strakhovskiy, G. M., "An X-Ray Pulse Method for Utilization of Fast-Acting Processes"

Official opponents: Prof I. L. Kaganov, Dr Tech Sci, and G. A. Tyagunov, Cand Tech Sci

Cites results of studying new designs of X-ray pulse equipment for obtaining radiographs covering millionths of a second at voltages up to 500 kv. Suggests a new principle for the construction of high-voltage X-ray equipment in which pulse operating conditions similar to those used in the plate supply of radar transmitter tubes are employed for X-raying.

43. Tatur, T. A., "Methods of Calculating Steady-State Currents in Linear Systems for Nonsinusoidal Periodic Voltages"

Official opponents: Prof G. A. Levin and V. N. Lavrov

Discusses a new method of calculating steady-state conditions of electric circuits when a periodic voltage of any form is fed to the input. This method gives the solution in its final form and requires knowledge only of the analytic expression for the applied voltage and the circuit parameters. In contrast to other methods, this one is also applicable to the case of multiple roots.

44. Tel'nov, S. V., "Study of the Operation of Traction Motors in the Electric Coupling of Axles"

Official opponents: Prof Ye. V. Nitusov, Dr Tech Sci, and L. M. Trakhtman, Cand Tech Sci

Studies "antislipping" systems for rolling stock which provide for electric coupling of the electric locomotive axles. The axles are equipped with dc series motors and have individual drive. Establishes methods and gives calculation formulas for drawing up the speed characteristics of slipping. Indicates the dependencies to be considered in the design of locomotives with electric coupling of the axles.

45. Turovskaya, P. G., "Development and Study of Switching Equipment for Fluorescent Lamps"

Official opponents: Prof K. M. Polivanov, Dr Tech Sci, and Prof Yu. V. Butkevich, Dr Tech Sci

Analyzes parameters of switching equipment with a power factor correction for a single fluorescent lamp and for a two-lamp circuit. Conducts a number of experiments and calculations, from which the design of switching equipment is developed and agreement of the results of calculations and experiment is verified.

46. Ul'yanovskiy, N. A., "Sets of Technical Problems Involved in the Transmission of High-Frequency Currents on High-Voltage Lines and the Development of FM Equipment for Telephones"

Official opponents: Prof V. A. D'yakov, Dr Tech Sci, and Ya. L. Bykhovskiy, Cand Tech Sci

Compares the advantages of FM and single-sideband suppressed-carrier systems as applied to communications using power lines and cites experimental data on the interference-rejection of the narrow-band FM method as compared with the amplitude method. Analyzes the problem of combined multiple utilization of carrier frequencies for various services in power systems.

47. Vinogradov, P. A., "Switching Elements in a Radio-Telemetering System"

Official opponents: Prof I. M. Kragel'skiy, Dr Tech Sci, and Yu. V. Rabotnov, Dr Physicomath Sci

Discusses switching equipments with solid metal contacts for radio-telemetering circuits. By generalizing the material introduced, recommends switch types and contact forms. Cites results of dynamic and experimental analysis of three switches. Results confirm theoretical conclusions.

48. Vishnevskiy, P. A., "An Electric Method for Checking the Capillary Channels of a Draw Plate"

Official opponents: Prof L. D. Bel'kind, Dr Tech Sci, and P. I. Glushchenko, Cand Tech Sci

Gives a new method for checking the holes of draw plates used in the synthetic fiber industry. From the results of experimental studies, proves the feasibility of building a similar electrical testing unit for use in plant conditions. Describes the measurement method, which eliminates the influence of interference upon the measurements.

49. Yakhinson, B. I., "Study of Passive Differentiating and Averaging Circuits"

Official opponents: Prof A. Yu. Ishlinskiy, Dr Tech Sci, and B. I. Stanislavskiy, Cand Tech Sci

Gives results of an experimental and theoretical study of a number of passive circuits used in complex special-purpose electric instruments. Devises a method for the determination of the ideal transient characteristics for circuits accurately performing the suitable operation and finds the ideal characteristics for various types of variations of the input value. The transient characteristics of real differentiating and averaging circuits are compared with the ideal. Discusses methods of bringing the reproducible circuits closer to the ideal.

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